



George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama 35812

QD-IM-006
Revision B

EFFECTIVE DATE: October 15, 2004

ORGANIZATIONAL INSTRUCTION

SAFETY AND MISSION ASSURANCE INFORMATION TECHNOLOGY CONFIGURATION MANAGEMENT

OPR(s)

QD03, QD40

OPR DESIGNEE

Teresa Durette

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DOCUMENT HISTORY LOG

Status (Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
Baseline	Baseline	09/18/03	New Document
Revision	A	03/05/04	Revised to reflect technology changes, minor edits, and to delete the change request form.
Revision	B	10/15/2004	Rewrite Instructions. Also bring document in compliance with the HQ Rules Review Action (CAITS: 04-DA01-0387). Changes were also made to reflect S&MA organizational name changes (i.e., QS to QD) and to clarify the Purpose, Scope, Applicability, and better define process steps. Also incorporated formatting changes.

1. PURPOSE, SCOPE, APPLICABILITY

1.1 Purpose - The purpose of this OI is to establish the procedure and responsibilities regarding configuration management of software products developed for S&MA by S&MA personnel.

1.2 Scope - This Organizational Issuance (OI) provides instructions for controlling configuration management of software products, including databases and applications, for MSFC S&MA. Standard COTS products used by an S&MA employee to perform his or her tasks are not required to be placed under configuration management.

1.3 Applicability - This OI applies to all personnel developing and maintaining software for MSFC S&MA.

2. DOCUMENTS (applicable and/or Reference)

2.1 Applicable Documents

MPD 2800.1 Management of Information Technology Systems and Services at MSFC

2.2 Reference Documents

None

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3. DEFINITIONS

3.1 Application – One or more files containing Application Code. May also include associated Database file(s).

3.2 Application Code – Executable commands which control on-screen data presentation, Database connectivity and application logic flow via control structures (e.g. “If – Then”, “Do While”).

3.3 Application Owner – The individual who has organizational responsibility for the business process the Application supports. Initially, the individual who requested the Application.

3.4 Test Environment – An environment into which completed development work is deployed for acceptance testing by user group; method of access is by web browser.

3.5 Branching – A method for managing multiple releases of a software product simultaneously in a way that allows work to progress on more than one version of the product without interference.

3.6 Check In – A command used by the Developer to update the Configuration Management repository with changes made to a checked-out file.

3.7 Check Out – A command used by the Developer to copy a version of one or more selected file(s) from the Configuration Management repository to the Developer’s workspace for revision.

3.8 Configuration Management– The process by which changes to a set of files are tracked and labeled at various times during their life, allowing for re-creation of the complete product at any desired point in it's history.

3.9 Configuration Management Lead – An individual supporting the QD organization who manages the Configuration management tool and processes.

3.10 Configuration Management Tool – Software application used by the S&MA organization to provide the ability to 1) track changes to individual files, 2) reference multiple files as a single entity (project), and 3) create snapshot-in-time entity references, capturing the state of each constituent file at a point in time. Also referred to as the CM tool.

3.11 Database – A repository for data.

3.12 Developer – Individual responsible for creating and maintaining Application Code and Database structures.

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3.13 Development Environment– An environment that is used as a work area during application or database development, modification and testing. Due to the instability of such an environment, access is limited to a small group of individuals.

3.14 File – An electronic file stored on a computer hard drive.

3.15 Label (noun) – Any string up to a length permitted by the CM Tool that is supplied by Developer during Label action. Labels are used to tag a product prior to release into production or testing or to mark a milestone event against associated configuration, such as completion of a testing activity.

3.16 Label (verb) – A command whereby a Developer assigns a Label to the current version of a file or project.

3.17 Module – An assembly of files constituting a functional package. Typically Modules are single-purpose components that are smaller in size than an application. An application may contain any number of Modules.

3.18 Project – A group of related files, typically all the files required to reproduce a software product and it's supporting documentation.

3.19 Version Control – see “Configuration Management”

4. INSTRUCTIONS

4.1 All S&MA Developers shall use the approved configuration management process as described herein to maintain version control. S&MA personnel planning to develop software shall contact the Organizational Computer Security Official (OCSO) to obtain access to the CM Tool prior to commencement of development activities.

4.2 Developers shall store all information related to but not contained in an application, such as user guides, within the CM repository as instructed by the Configuration Management Lead.

4.3 Developers shall manage all files within the CM Tool and use the CM Tool as the only source for accessing files. Programmers shall Check Out the file, incorporate changes and internal comments, save the work, Check In the file to the CM Tool and add a comment describing the changes made.

4.4 Developers shall assign the project a label to mark milestone events, such as completing a testing activity or marking a release.

4.5 Developers shall use branching to manage parallel development which is necessary to maintain a released version while developing the next Major or Minor release. The initial

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development project, called the trunk release, shall be numbered A.B.C per schema described herein. Developers shall create a branch to use for maintenance each time that a Major or Minor version is released. The branch shall contain the keyword "release" and reflect the appropriate Major or Minor release number.

4.5.1 A reflects the Major version number which starts at 0 for the initial development. This number increments by 1 when releasing a major change to the software. For example a change that has a significant impact on the software process flow, such as a rewrite of the user interface or the addition of a module.

4.5.2 B reflects the Minor version number which starts at 0 and increments by 1 when releasing a minor change to the software. Minor revisions include improvements on previously released functionality that do not significantly change the user interface or process flow, or represent the addition of a module.

4.5.3 C reflects the patch number resulting from the correction of a problem in a previously released Minor version. The patch version starts at 0 with each new release and is incremented by 1 for each patch that is released until the next major or minor release is made.

4.5.4 For existing applications, Developers shall maintain version control as described herein beginning with the current version number of the application adapted as necessary to conform to the A.B.C schema.

5. NOTES (References)

None

6. SAFETY PRECAUTIONS AND WARNING NOTES

None

7. APPENDICES, DATA, REPORTS, AND FORMS

None

8. RECORDS

RECORD	REPOSITORY	PERIOD OF TIME
Software Product Configuration Management Files	QD03: OCSO-approved Developers per the governing security plan. Maintained Electronically in S&MA CM Tool	NPG 1441.1 NASA Retention Schedules. Schedule 1/72E (1440)C Electronic Files Maintained for Life of the Application

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9. TOOLS, EQUIPMENT, AND MATERIALS

None

10. PERSONNEL TRAINING AND CERTIFICATION

None

11. FLOW DIAGRAMS

None

12. RESPONSIBILITIES

12.1 IT Manager – Designate a Configuration Management Lead.

12.3 Configuration Management Lead – Assure proper functionality of the CM Tool and assist Developers in executing requirements described herein.

12.4 OCSO – Approve a Developer's use of the CM tool and communicate that approval to the Configuration Management Lead.